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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,224	01/21/2004	Hirotsuna Miura	9319S-000636	2202

27572 7590 08/09/2007  
HARNESS, DICKEY & PIERCE, P.L.C.  
P.O. BOX 828  
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EXAMINER
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KOCH, GEORGE R

ART UNIT	PAPER NUMBER
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1734

MAIL DATE	DELIVERY MODE
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08/09/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/762,224	Applicant(s) MIURA ET AL.	
	Examiner George R. Koch III	Art Unit 1734	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 July 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 3-5, 17 and 25-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-5, 17 and 25-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/18/2007 has been entered.

***Claim Rejections - 35 USC § 103***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 25, 26, 3-5, 17 and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Renn (WO 00/23825, submitted with the IDS filed 2/6/2006) in view of Oeftering (5,722,479)

As to claim 25 and 26, Renn discloses a liquid drop discharge device, comprising: a substratea discharge head discharging a liquid drop to a substrate (items 54, 60 and 64); and trajectory correcting means for applying energy to turn the liquid drop back to a predetermined trajectory when the liquid drop discharged out of the discharge head is diverted from the predetermined trajectory (items 46, 64 and 56). Renn discloses that the energy further comprises light energy (for example, page 6, which discusses laser beams and optical forces). Renn discloses the light beam emitting means includes a laser light source (see page 6). Renn discloses the trajectory correcting means includes means for emitting a light beam surrounding

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the predetermined trajectory of the liquid drop. (see Figure 4). This item is a head unit disposed opposite the substrate.

The placement of nozzle dispense manipulation devices such that they surround the nozzle is obvious. Oeftering discloses electrical devices for manipulating a nozzle dispense, wherein the devices (Figure 2, items 130 and 150) substantially surround the nozzle. Such a position allows for improved placement of the droplets on the substrate. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have surround the nozzle with droplet manipulation device in order to allow for improved placement of the droplets on the substrate.

As to claim 26, the use of substrate stages is obvious.

As to claim 3, Renn further discloses that the trajectory correcting means drives the liquid drop by "optical forces" generated by the light energy. The optical forces of the light/laser beam is considered light pressure.

As to claim 4, Renn discloses that the trajectory correcting means drives the liquid drop by "optical forces" which are inherently generated when atmosphere around the liquid drop trajectory absorbs the light energy. The optical forces of the light/laser beam is considered derived from the kinetic energy of molecules.

As to claim 5, Renn discloses that the liquid drop contains a photothermal converting material for absorbing and converting the light energy into heat. (See page 9, which discloses heating inside the laser beam)

As to claim 17, Renn is capable of printing as claimed.

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As to claims 27-30, the light beams generated by Renn are considered capable of being programmed to operate in the pattern claimed. Additionally, the device of Oeftering shows the concept of surrounding and axially manipulating the droplets.

#### ***Response to Arguments***

4. Applicant's arguments filed 7/18/2007 have been fully considered but they are not persuasive. Oeftering has been applied to show the concept of surrounding a nozzle with post-dispense droplet manipulation devices..

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (571) 272-1230 (TDD only). If the applicant cannot make a direct TDD-to-TDD call, the applicant can communicate by calling the Federal Relay Service at 1-866-377-8642 and giving the operator the above TDD number. The examiner can also be reached by E-mail at [george.koch@uspto.gov](mailto:george.koch@uspto.gov) in accordance with MPEP 502.03. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip Tucker can be reached on (571) 272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



George R. Koch III

Primary Examiner

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8/6/07